

### REMARKS

Claims 1-87 are pending in this application, of which Claims 1, 16, 37, 45, 59, 84 and 86 are in independent form.

Applicant notes with appreciation the withdrawal of the rejections under 35 U.S.C. § 102. Claims 1-4, 6, 7, 11-17, 24-26, 29-33, 37, 39, 41-45, 51-55, 59, 63-68 and 83-87 have now been rejected under 35 U.S.C. § 103(a) as being obvious from *Potts* and *Sethi*, of record, in view of the newly cited Murphy article. Claims 34-36 and 56-58 have been rejected under Section 103(a) as being obvious from those three documents taken together with *Morag*, of record. Claims 5/1, 5/2, 8/1, 8/2, 9/1, 9/2 10/1, 10/2, 18/16, 18/17, 19/16, 9/17, 20/16, 20/17, 21/16, 21/17, 22/16, 22/17, 23/16, 23/17, 27, 28, 38, 40, 46-50, 60-62 and 69-79 have been rejected under Section 103(a) as being obvious from *Potts*, *Sethi* and *Murphy* in view of *Chandler*, of record, and Claims 80-82 have been rejected under Section 103(a) as being obvious from *Potts*, *Sethi*, *Murphy* *Chandler*, in view of *Morag*.

The present invention relates to a system for the classification of images based upon shot type. As set out in Claim 16, for example, a method is claimed that makes use of face detection to identify a frame as containing a face (Claim 1 is similar). The size (Claim 1) or location (Claim 16) of the face in the image is then determined. Based upon the size or location of the human face, a classification is then ascertained and applied to the image. The classification is then stored as part of metadata with the image.

Independent Claim 1, more specifically, is directed to a method for automated classification of a digital image, in which the digital image is analyzed for the presence of a human face, and a size of the located face is determined with respect to a size

of the image. The digital image is classified according to one of a number of shot types based on the relative size of the face with respect to the image, and the classification of the digital image is stored as metadata associated with the digital image.

In the Examiner's response to Applicant's previous submissions, contained in paragraph 7 of the Office Action, it is stated that:

“*Potts* discloses classifying the image based on the relative size of the face with respect to the image (column 10, lines 35 to 52).”

With respect, such is an incorrect interpretation of the cited portion of *Potts*, which merely determines whether or not the image contains a face. Specifically, *Potts* at column 10, line 38 to 40 states:

“Video face detection module 102 uses two methods to determine whether a face segment likely represents a face.”

The first method involves (see lines 41 to 48) determining:

“Whether the size of the face segment corresponds to a default size of the image of a typical or preselected head given the camera range value. If the size of a face segment is less than the default image size at that range (or a scale default size at that range, such as 125% of the default image size), video face location module 102 determines that the face segment likely does not represent a face.” (Emphasis added.)

The second method is mentioned at column 10, lines 48 to 52, where it is noted:

“If the proportions of a face segment are not within a range for a typical head (for example, width to height ratio 1.5), video face detection module 102 determines a face segment likely does not represent a face.”

Quite clearly from these quoted portions, *Potts* merely classifies images either containing or not containing a face. Other than classifying the image as being a “face” image, no further classification is obtained from this analysis. While Applicant acknowledges that *Potts* makes use of determining the size of the located face with respect to the size of the image, such determination is performed with knowledge of a “camera range value”, i.e., that distance between the camera and the actual target (e.g., a possible human face).

Moreover, Applicant strongly urges that the Examiner is misinterpreting *Sethi*, which continues to be relied upon as disclosing:

“determining the shot type of an image including close-up, close shot, medium shot, full shot, and long shot (page 4, paragraph 3) thereby providing information about the intention of photographer” (from page 11 of the Office Action).

*Sethi* is a broad ranging document entitled “a statistical approach to scene change detection”. *Sethi*, therefore, is concerned with scene change detection. While the quoted paragraph (page 4, paragraph 3) does make mention of shot boundary detection, *Sethi* other than making this note, makes no use or adds to the disclosure of shot type in making any scene change detection. Further, as clearly stated in the first sentence of the cited paragraph, *Sethi* notes:

“To perform accurate shot boundary detection, the knowledge of the shot type is essential” (emphasis added).

*Sethi* then proceeds to discuss the attributes of different shot types, those being consistent with those discussed in the “background” portion of the present application. In concluding the cited paragraph, *Sethi* states as follows:

“Since shot type classification depends upon the distance between the camera and the subject being recorded, eg. a person, a house, or an automobile, it is clear that this kind of normalisation capability without a priori scene knowledge is impossible to achieve”.

Here, *Sethi* makes a unequivocal statement that knowledge of the distance between the camera and the target is essential for shot type classification. *Sethi*, by this statement, clearly teaches away from the present invention, which performs shot type classification without the need for any distance or range measurement. Further, the type of classification referred to in *Potts* as noted as clearly quoted above is dependent upon a range between the camera and the target in assessing whether or not the target is a face. It follows therefore that *Sethi* does not disclose determining the shot type of an image, as stated in the Office Action. *Sethi* states that knowledge of the shot type is essential to perform shot boundary detection. The present invention however is not concerned with shot boundary detection. *Sethi* does not disclose any form of shot type determination.

As clearly noted in the introductory portion of the present application and also in the cited paragraph of *Sethi*, shot type classification is something that has been in existence for many years and effectively since the commencement of the motion picture industry. The cited paragraph of *Sethi* adds no more to that disclosure other than by teaching away from the present invention through requiring the distance or range measurement as essential for shot type classification.

It follows therefore that the cited portion of *Potts* dictates knowledge of the range between the camera and the target in order to perform the disclosed form of face detection. *Sethi* states that it is clearly necessary to know that range in order to provide any

form of shot classification. However, *Sethi* merely requires knowledge and provides no determination of how that classification is performed.

It follows therefore that a skilled person, even if such were able to locate and interpret the disclosure of *Potts* as being relevant and informative, would obtain no further information or guidance from *Sethi* as to how to perform the classification because *Sethi* is unrelated to the problems of the present invention and further dictates the use of a range or distance measurement which is that already afforded by *Potts*, and not used in the claimed invention.

The Examiner's attention is referred to MPEP § 2141.02, which states that the invention must be considered as a whole and that the prior art must be considered in its entirety, including disclosures that teach away from the claims.. In this regard, *Sethi* has a title unrelated to the object of the present invention. Further even if a skilled person were to read *Sethi*, as noted above, *Sethi* teaches away from the invention by unequivocally expressing a need to know the range between camera and target for shot type classification. Further, *Potts'* video face location module 102, in spite of working with relative sizes, only provides a binary output (i.e. "face" or "no face"). *Potts* does not disclose "determining a size of the located face with respect to the size of the image" as a useful variable and *Sethi* affords no disclosure or suggestion of how any such size may be used for shot type classification.

*Sethi* requires knowledge of the shot distance which may be combined with *Potts'* camera range to afford shot classification. However, this is not relevant to the techniques used in the independent claims presented herein, which do not need to rely on shot classification based on camera range.

As a consequence, the only relevant disclosure of *Sethi* is that already acknowledged by Applicant as being prior art, and the rest of the content of *Sethi*, upon which reliance has been made in the Office Action, plainly teaches away from the independent claims herein. Accordingly, the combination of *Sethi* with any of the other prior art documents, notably *Potts*, is inappropriate, and any rejection founded thereupon is improperly based and should be withdrawn.

The foregoing comments apply to all claims dependent upon Claims 1, 37 (a corresponding apparatus claim), 45 (a corresponding memory-medium claim) and 84 (a similar method claim), in that the proposed combination of *Potts* and *Sethi* is inappropriate and the rejection based on that proposed combination should therefore be withdrawn.

Independent Claim 16 (to which method Claim 86 is very similar) differs slightly from Claim 1 in that the classification is based upon the relative position of the determined face or object within the image, as compared to the size of the face or the object in Claim 1.

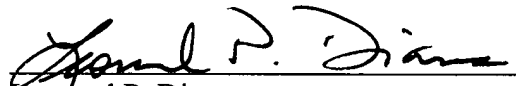
With regard to Claims 16 and 86, *Potts*, *Sethi* and *Murphy* have each been carefully reviewed and none seem to disclose any basis by which the position of an object, be it a face or some other object, where an image is detected and then used to provide a classification as to shot type. Further, it is noted that the Office Action fails to provide any reference to any of the citations as to where the position of an object with an image is expressly detected nor where any such position may be used for shot type classification. Accordingly, the rejection of Claims 16 and 86 is inappropriate and should be withdrawn, as should that of Claims 45 (an apparatus claim corresponding to Claim 16).

The other claims in this application are each dependent from one or another of the independent claims discussed above and are therefore believed patentable for the same reasons. Since each dependent claim is also deemed to define an additional aspect of the invention, however, the individual reconsideration of the patentability of each on its own merits is respectfully requested.

In view of the foregoing remarks, Applicant respectfully requests favorable reconsideration and early passage to issue of the present application.

Applicant's undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,

A handwritten signature in dark ink, appearing to read "Leonard P. Diana", is written over a horizontal line.

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